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Self-Synchronization: Splendid Promise or Dangerous Delusion?

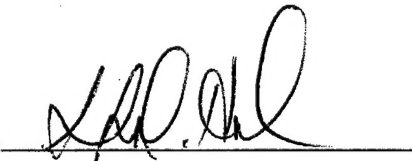
BY

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A paper submitted to the faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: \_\_\_\_\_



16 May 2000



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## Abstract of

### **Self-Synchronization: Splendid Promise or Dangerous Delusion?**

*Joint Vision 2010*, the conceptual template for America's 21<sup>st</sup> Century military, is a vision replete with optimism rooted in predictions of dominating American technology and the ability of future commanders and troops to leverage this technology with extraordinary efficiency and precision. Proponents of Network-Centric Warfare (NCW) build upon the optimism in *Joint Vision 2010* by offering a war-fighting paradigm that promises "an information superiority-enabled concept of operations that generates increased combat power by networking sensors, decision-makers, and shooters to achieve shared awareness, increased speed of command, higher tempo operations, greater lethality, increased survivability, and a degree of self-synchronization."<sup>1</sup> Of the six combat power-enhancing ingredients achieved by networking sensors, decision-makers and shooters, self-synchronization emerges as a term that is new to warfare. Self-synchronization occurs when friendly war-fighting entities seek to exploit the power of networking by acting with initiative in real-time—outside of traditional command and control mechanisms—in order to leverage advantage, seize opportunity, or address unanticipated needs or deficiencies, as violent interaction in the battlespace unfolds. Is there splendid promise in such an idea, or is this a dangerous delusion that could result in wasted resources or confused future combat operations? Answering this question requires close examination of self-synchronization from the perspective of the coiners of the term. Next, the risks associated with self-synchronization must be articulated and weighed. Finally, possible doctrinal and behavioral answers to these risks such as a reconsideration of commander's intent and emphasis on the application operational risk management (ORM) must be considered.

*"He who has been a soldier has much to contemplate"*

*Brother Cadfael*

## Introduction

*Joint Vision 2010 (JV 2010)*, the conceptual template for America's 21<sup>st</sup> Century military, is a vision replete with optimism rooted in predictions of dominating American technology and the ability of future commanders and troops to leverage this technology with extraordinary efficiency and precision. Proponents of Network-Centric Warfare (NCW) such as Naval War College President Vice Admiral Arthur Cebrowski and David S. Alpert of the Department of Defense's C4ISR Cooperative Research Program (CCRP), build upon the optimism in *JV 2010* by offering a war-fighting paradigm that promises future joint force commanders "an information superiority-enabled concept of operations that generates increased combat power by networking sensors, decision-makers, and shooters to achieve shared awareness, increased speed of command, higher tempo operations, greater lethality, increased survivability, and a degree of self-synchronization."<sup>2</sup> Of the six combat power-enhancing ingredients achieved by networking sensors, decision-makers and shooters, self-synchronization emerges as a term that is new to warfare. What is self-synchronization? Is it possible to achieve? Are there risks involved? If so, are there doctrinal or behavioral solutions to help mitigate some of these risks? This paper will attempt to answer these questions by first considering self-synchronization from the perspective of those who coined the term. Next, an alternative point of view will be offered that articulates some significant concerns associated with self-synchronization. Two potential solutions to these concerns—one doctrinal in the form of a reconsideration of commander's intent, and one behavioral that addresses the value of Operational Risk Management (ORM)—will then be offered. Finally, we will consider the bottom line—is self-synchronization a splendid promise, or is it a dangerous delusion?

## Self-synchronization—What is it?

VADM Cebrowski defines self-synchronization in is way:

*Self-synchronization is the ability of a well-informed force to organize and synchronize warfare activities from the bottom-up. The organizing principles are unity of effort, clearly articulated commander's intent, and carefully crafted rules of engagement. Self-synchronization is enabled by a high level of [knowledge of] one's own forces, enemy forces, and all appropriate elements of the operating environment. It overcomes the loss of combat power inherent in top-down command directed synchronization characteristics of more conventional doctrine and converts combat from a step function to a high-speed continuum.*<sup>3</sup>

Very simply, self-synchronization occurs when people do the right thing, at the right time, for the right reason, without having to be told by someone higher in the chain of command.<sup>4</sup> Initiative, effective decision-making, and decisive action in the absence of specific top-down guidance are therefore fundamental elements of self-synchronization. Empowered leadership is also essential because self-synchronization demands the creation and execution of courses of action in real-time, without the review and approval mechanisms of traditional hierarchical command and control. Additionally, self-synchronization involves more than empowered leaders taking smart, decisive action at low levels within a single organization. There is an interactive aspect of self-synchronization wherein two or more friendly force "entities" organize and synchronize warfare activities from the bottom-up in response to fluidity in the battlespace.<sup>5</sup> Technology is expected to make such activity possible in the form of remarkable sensor capability that can be networked such that friendly forces will be able to share an extraordinarily accurate, relevant, secure, and timely "picture" of the battlespace. This "picture", according to VADM Cebrowski, can then be translated into the high level of knowledge of one's own forces, enemy forces, and all appropriate elements of the operating

environment necessary to self-synchronize—there will be “shared battlespace awareness.”<sup>6</sup> Shared battlespace awareness can then be leveraged in dominant fashion via increased speed of command and a sensor-to-shooter network that allows lethal and precise weapons to be delivered on high value targets as the conflict unfolds.

The war-fighting benefits of self-synchronization are found in increased tempo and responsiveness.<sup>7</sup> There is also an enormous pay-off in synergy that is created when two or more entities interact in self-synchronization. The goal is to have the right action taken so quickly the opponent is “always in the observation phase, never gets oriented, and thus can never make a decision and can never act”—friendly forces get inside, and stay inside, the enemy’s Observe, Orient, Decide, Act or OODA loop.<sup>8</sup>

A good way to fully grasp the potential of NCW, and in particular, self-synchronization, is by way of hypothetical example. According to the NCW vision, a Major Theater War (MTW) involving a regional power in the year 2015 might be described in this way:

The Unified Commander in Chief (CINC) surveys his area of responsibility with supreme confidence. He has near perfect knowledge of the battlespace via large, interactive screens in a high-tech command center. A robust, highly integrated and redundant network of sensors provides the CINC and his US led coalition forces with a clear, detailed picture of the battlespace in near real-time. A linked network of platforms and weapons translates this information advantage into massed combat effects. Acting upon shared understanding of commander’s intent and corporate knowledge of the unfolding battle, coalition aerospace, ground, and naval forces operate with astounding speed of command and the self-synchronization of individual units to locate, identify, and kill-at-will enemy targets of significance, while minimizing any risks of fratricide and collateral damage until an utterly overwhelming synergy and momentum results. American and coalition forces are operating inside the enemy’s OODA Loop. The enemy is “locked out”<sup>9</sup> of viable military options with which to respond—he is paralyzed. The fruits of the Revolution in Military Affairs (RMA) have proven ripe for the harvest.

To a congressional representative deep in the throes of the annual defense appropriations conundrum, this vision of the future probably sounds quite attractive. Those who may someday be responsible for putting theory into practice, however, are likely very interested in

the technological, doctrinal, and human behavioral details of making this vision reality. Is the pursuit of self-synchronization a technological “bridge too far” that overstates both the promise of information age technology and the decision-making ability of flawed, unpredictable human beings? In pursuit of an answer, we turn now to a decidedly different point of view.

### **Concerns and Risks—The Naysayer Perspective**

From a perspective firmly anchored in the elegant prose of 18<sup>th</sup> century war theorist Carl Von Clausewitz, NCW doubters cite the tenets of complexity theory and offer telling historical examples of intractable problems that are caused when flawed, unpredictable humans engage in complicated missions of violence within complex organizational settings. This perspective warns that war is, and will forever remain, enigmatic; that when opposing wills clash in battle, complexity, friction, unpredictability, and disorder best characterize the violent interaction. As such, war is not a mechanistic phenomenon amenable to precise, positive control systems or synchronized, centralized schemes—much less the phenomenal sophistication of effort implied in self-synchronization.<sup>10</sup> Any perspective that claims technology can remove uncertainty, chance, and risk from the battlespace to the extent offered in our hypothetical scenario above is naïve.<sup>11</sup>

From this broad Clauswitzian perspective, two lines of thought emerge that raise serious concerns about self-synchronization. The first line of thought challenges the technology-related assumptions of self-synchronization. The second line of thought questions assumptions about the capacity of human beings to function with the awareness, judgment, efficiency, and precision necessary to achieve self-synchronization.



Turning first to technology related concerns, at the heart of arguments that challenge self-synchronization from this angle, is an uneasiness that shared battlespace awareness is technologically feasible. In particular, concerns about the relevance, accuracy, and timeliness of net information, the network's vulnerability to asymmetric attack, and Service and coalition interoperability on the network have been voiced.<sup>12</sup> Since shared battlespace awareness is fundamental to NCW, self-synchronization is impossible if technology cannot guarantee shared battlespace awareness. Where did this idea of shared battlespace awareness come from, and why is it presumed to be a given for use by the future joint force commander?

The promise of shared battlespace awareness made possible by technological advantage was undeniably evident in Operation DESERT STORM. Coalition forces were able to exploit a distinct advantage in information gathering capability to create a very accurate "picture" of USCINCCENT's Theater of Operations (or, to use more current terminology, his *battlespace*). Intelligence gathering platforms and processes provided precise data regarding the positions of friendly, neutral, and most enemy objects of interest. More limited information was available regarding the current conditions and recent histories of enemy objects of interest. Finally, significantly less information was available about Iraqi intents and plans.<sup>13</sup> Coalition forces translated this data into robust knowledge of the battlespace, relative to what the Iraqi's knew about the Coalition's military situation. Awareness of the battlespace became knowledge when military professionals brought experience, analysis, and judgment into the equation. This knowledge was eventually translated into lopsided victory, as Coalition planners leveraged allied strengths against enemy weaknesses in the finest tradition of operational art. Operation DESERT STORM arguably vindicated Reagan era

defense investment. It also set the tone and direction for military investment in the 1990s and beyond.

*Joint Vision 2010*, published in 1997, predicts the 21<sup>st</sup> century version of the successes of DESERT STORM in terms of leveraging information advantages by stating:

*Improvements in information and systems integration technologies will also significantly impact future military operations... Information technology will improve the ability to see, prioritize, assign, and assess information. The fusion of all-source intelligence with the fluid integration of sensors, platforms, command organizations, and logistic support centers will allow a greater number of operational tasks to be accomplished faster. Advances in computer processing, precise global positioning, and telecommunications will provide the capability to determine accurate locations of friendly and enemy forces, as well as to collect, process, and distribute relevant data to thousands of locations. Forces harnessing the capabilities potentially available from this system of systems will gain **dominant battlespace awareness** ...Although this will not eliminate the fog of war, dominant battlespace awareness will improve situational awareness, decrease response time, and make the battlespace considerably more transparent to those who achieve it.<sup>14</sup>*

Critics of *JV 2010* have complained its focus is utterly platform-centric and suffers from a kind of *technophilia*, or unhealthy confidence in technology.<sup>15</sup> By this they mean America should be careful not to bet her future military on as yet unproven technology. Yet, VADM Cebrowski and others argue quite convincingly that the debate is not *just* about technological promise. In offering the Network Centric Warfare concept, they suggest NCW is as much about process and people as it is about technological capability. Moreover, the technology required to achieve shared battlespace awareness is already here, and it is operating in revolutionary fashion in the private sector. Hence, the NCW concept accepts as given tectonic change brought on by the onset of the information age and therefore, argues for an appropriate military response to the revolution occurring around us. Society and its underlying economics and technologies have already changed dramatically, NCW advocates assert; therefore our notions about war-fighting must also change dramatically. To the NCW believer, the

information age train has left the station. The military must adapt by co-evolving both hardware and method.<sup>16</sup> In a presentation given at the 1999 Command and Control Research and Technology Symposium, Vice Admiral Cebrowski described NCW as being “about human and organizational behavior,”<sup>17</sup> and as focusing on

*“attaining access—access to gather, process, and manage information to take advantage of the growing power resident in information networks. It offers a method to build information superiority...It facilitates the creation and sustaining of shared awareness at all command levels. NCW supports speed of command—the conversion of a superior information position into action. Because geographically dispersed forces enjoy information superiority, they can **self-synchronize or self-organize** (emphasis added) to accomplish time-urgent tasks. In brief, NCW is not narrowly about technology, but broadly about an emerging military response to the information age.”<sup>18</sup>*

In other words, we must continue to aggressively pursue information technologies and concepts not just because it is a promising idea from a war-fighting perspective, but also because the entire world is swept up in this unfolding phenomenon called the information age. For the military to tarry against this backdrop is tantamount to insisting the horse will forever reign as the most effective means of transportation. Moreover, the key to an appropriate military response to the information age is to focus as much on process as on platform, and as much on the people who must interact on the net as the products it produces. Decisive advantage occurs when individual units *act* upon their relative information superiority with initiative—they *self-synchronize*. From this perspective, we can see the challenge becomes how to optimally stack the building blocks of technology—hardware/integration processes—and human capital to best facilitate self-synchronization in the future battlespace.

So it may be reasonably offered that given the momentum of the information age change, the perspective and guidance in *JV 2010*, the intellectual rigor of NCW, and current defense

investment trends, the odds are excellent that our hypothetical 2015 CINC will have at his disposal a robust, highly integrated and redundant network of sensors providing a common operational picture of the battlespace. This picture will be provided in near real-time from the NCA down to the unit operating level. Problems associated with information relevance, accuracy, and timeliness, as well as concerns about asymmetric vulnerability and network interoperability should not prove impossible to solve.

This prediction leads us to our second naysayer line of thought—that which questions the human dimension of self-synchronization. If technology can be counted on to provide shared battlespace awareness, are the human beings that must leverage this information advantage with precision and efficiency capable of doing so? Or will human frailty and unpredictability, sure to be magnified by the chaotic and violent nature of war, stand in the way? Authors Lt Gen Paul Van Riper and Lieutenant Colonel F.G. Hoffman, USMCR, illuminate this concern by eloquently reminding us in their 1998 piece, “Pursuing The Real Revolution In Military Affairs: Exploiting Knowledge-Based Warfare,” that General Hooker was defeated by General Robert E. Lee during the Civil War at the Chancellorsville crossroads in May of 1863, despite a numerical advantage in forces and initial dominant battlespace awareness relative to his foe. Friction caused by bad weather, lost information, human failures, and the decisions of his audacious antagonist conspired to erode Hooker’s opening information superiority. Soon the overwhelming synergy and momentum Hooker hoped would paralyze Robert E. Lee, was lost to the “ragged legions” of Confederate troops. Ironically, Lee was the commander who operated within his opponent’s decision cycle and the Union force met humiliating defeat as a result.<sup>19</sup> Van Riper’s point is not that our 2015 CINC might be undone by Civil War era obstacles (although this too is possible), but that

friction is ubiquitous in war and that an enemy working to defeat friendly strategies, plans, and capabilities must never be assumed away in technological hubris. This means that although our 2015 CINC and the forces under his charge will have shared battlespace awareness that offers significant war-fighting *potential*, such awareness by no means *guarantees* success.

We might draw three conclusions from the above discussion:

1. America will aggressively pursue information technologies that will result in the achievement of *shared battlespace awareness* in future conflict.
2. This *shared battlespace awareness* might be characterized as a necessary, but insufficient condition that must be achieved in order to prevail in future warfare.
3. The term *dominant battlespace awareness* is misleading. We can never dominate with simple awareness. **Domination of our enemy via self-synchronization begins at the nexus of technology-enhanced awareness and effective human decision-making.**

Can our 2015 CINC avoid an ignominious repeat of General Hooker's experience at Chancellorsville and achieve the promise of self-synchronization? What doctrinal and human behavioral issues must be considered in order for our CINC's future warriors to master the nexus of battlespace awareness and effective decision-making?

VADM Cebrowski has stated that one very important organizing principle in achieving self-synchronization that has deep doctrinal roots is "clearly articulated commander's intent."<sup>20</sup> The naysayer line of thinking that questions the human dimension of self-synchronization may find significant traction in challenging this statement. The reason is found in human limitations.

Indeed, every commander's dream is to effectively communicate policies, missions, and orders such that each and every, soldier, sailor, airman and/or marine under his or her charge acts correctly and without hesitation in carrying out his or her directives. Unfortunately, most commanders can likely relate horror stories about "the five percent who didn't get the

word,” or worse, about the realization of some wholly undesired outcome rooted in widespread misunderstanding of guidance from above. While such experiences are disappointing in a peacetime training environment, gaps in effective commander-to-subordinate communication can prove both costly and deadly in combat. Moreover, Clausewitz’s admonition that the interactive nature of war greatly compounds what seems simple on paper—“everything in war is very simple, but the simplest thing is difficult.” — seems likely to remain a vital factor for our future CINC and his subordinate commanders to consider, even with the benefit of shared battlespace awareness.<sup>21</sup>

A traditional tool to communicate the “essence” of the mission to subordinates is the concept of commander’s intent. The US Army’s doctrine bible, FM 100-5, defines commander’s intent in this way:

*The commander’s intent describes the desired End State. It is a concise expression of the purpose of the operation and must be understood **two echelons** (emphasis added) below the issuing commander. It must clearly state the purpose of the mission. It is the single unifying focus for all subordinate elements. It is not a summary of the concept of the operation. Its purpose is to focus subordinates on the desired End State. Its utility is to focus subordinates on what has to be accomplished in order to achieve success, even when the plan and concept of operations no longer apply, and to discipline their efforts toward that end.*<sup>22</sup>

In theory, this sounds almost easy. In practice, however, the creation and communication of commander’s intent is enormously difficult. In a recent “Armor” magazine article, LTC Walter N. Anderson, USA stated flatly

*...ideally, the commander’s intent would define mission success in a way that provides commonality of purpose/unity of effort and unleashes subordinate leader initiative when either the original plan no longer applies or unexpected opportunities arise. The problem is that few commanders achieve this effect with their intent. Either the intent is so vague as to be useless or so detailed as to be a rehash of the scheme of maneuver—both cases requiring subordinates to sift through and determine for themselves what the commander really wants. In few cases is the commander’s intent truly understood one echelon below, let alone two.*<sup>23</sup>

I make this point not to challenge the doctrinal importance of commander's intent but to underscore the height of the hurdle that must be overcome in order to achieve the NCW vision of self-synchronization. The US Army has corporately wrestled with the conundrum of commander's intent for decades. To their great credit, the Army continues to stress the importance of commander's intent in the information age. In 1998, they released a new field manual, FM 101-5, Staff Organizations and Operations, that seems to take a few cautious steps forward with this revised definition:

*A clear concise statement of what the force must do to succeed with respect to the enemy and the terrain and the desired end state. It provides the link between the mission and the concept of operations by stating the key tasks that, along with the mission, are the basis for subordinates to exercise initiative when unanticipated opportunities arise or when the original concept of operations no longer applies. (emphasis added)*<sup>24</sup>

The subtle, but key difference between the FM 100-5 definition and this revised version, is that the FM 101-5 definition implies less control from the top down and more empowerment for subordinates to seek solutions from the bottom-up. This seems a step in the right direction in terms of someday achieving self-synchronization. However, the kind of clarity in commander's intent that LTC Anderson believes is so elusive in today's top-down command and control (C2) environment would seem even more elusive in a future high tempo, rapidly changing NCW environment wherein units would be expected to self-synchronize. Is VADM's Cebrowski's goal of "clearly articulated commander's intent" simply impossible to achieve?

Confusion about commander's intent may exact a heavy price in a network centric future. There are significant risks associated with unleashing "entities" to act without first getting approval from a higher echelon of command. One such risk concerns the possibility that the simplest tactical mistakes might have enormous strategic impact because today's information

age media coverage can reach huge audiences with graphic pictures and unfiltered analysis in near real-time. A frightening recent example of this phenomenon occurred in the Kosovo Air Campaign when an American B-2 precision bombed the Chinese Embassy in Belgrade. A related risk concerns the “shoot-first-ask-questions-later” nightmare evolving from visions of some out-of-control unit rushing to bad judgment in efforts to act faster than the situation dictates. The government of Viet Nam’s recent celebration of the 25<sup>th</sup> anniversary of their victory ending the war in Viet Nam inspired a number of editorials recalling the horror of the infamous My Lai incident and America’s long ordeal in reconciling its terrible fallout. On the other hand, the reverse of the shoot-first-ask-questions-later problem might arise in the form of “entities” that become overly cautious and reluctant to act because of weighty risks and fear of failure vis-à-vis a pressing decision they face.

In summarizing the naysayer point of view, we might conclude that although doubters may not enjoy solid footing in terms of challenging self-synchronization from a technological angle, there is room for legitimate uneasiness from the human dimension perspective. Does this mean self-synchronization is a delusion? I think not. The war-fighting potential inherent in the concept of self-synchronization is worthy of every effort to harness it. However, we need to first generate widespread recognition that the problems associated with the human dimension of self-synchronization are of very significant magnitude. Next, we must encourage deeply creative thought that seeks to master that nexus of shared battlespace awareness and effective human decision-making discussed earlier. Two such possible solutions are offered next. The first is doctrinal in nature and involves a reconsideration of commander’s intent in a NCW environment. The second is a proposed behavioral tool in the



form of operational risk management (ORM) as a means to facilitate effective decision-making in a NCW future.

### **Commander's Intent in the 21<sup>st</sup> Century**

True empowerment at the appropriate level is the key to self-synchronization. My notion of *21<sup>st</sup> century commander's intent* argues for empowerment to the perhaps revolutionary extreme. In my view, *21<sup>st</sup> century commander's intent* should focus more on articulating boundaries in relation to achieving desired end state, vice method in the form of key tasks to be accomplished. In truth, the current understanding of commander's intent is utterly top-down in nature. Multiple layers of command anxiously seek to understand, refine, and retransmit to the next lower level one detailed vision—the CINC's—of how the war should unfold. By the time guidance reaches the small unit level, there is tremendous opportunity for confusion about what the boss really wants to have seeped insidiously into the process. This stifles rather than enables subordinate leader initiative. It also takes time. Perhaps a better way to approach the problem is to think of commander's intent in a future self-synchronization scenario as “living” guidance—guidance that begins with desired end state painted in broad strokes and a set of boundaries, and then evolves in whatever level of detail is necessary to achieve self synchronization as events unfold from the bottom-up. In this way, there is a diffusion of responsibility of sorts in terms of *how* missions are accomplished. However, there should also be an accompanying order of magnitude increase in the potential for creativity in accomplishing the mission and in appropriate adjustment to Clausewitzian uncertainties in combat. Additionally, with *shared battlespace awareness*, there should be remarkable flexibility for high-level commanders to adjust boundaries in near real-time. A reasonable analogy might be that future CINCs and component commanders would be more

in the business of coaching than quarterbacking as they communicate their commander's intent in situations where self-synchronization is desirable.

The US Marine Corps is already embracing the potential of empowered leadership with "Mission C2." Mission C2 describes a loose, decentralized form of command and control predicated on an understanding of the overall mission requirements rather than out of compliance with detailed direction from above.<sup>25</sup>

As a point of clarification, I'm not suggesting that we completely toss current deliberate or crisis action planning doctrine and procedure out the window. Certainly we would want to retain the capability for robust analysis and planning, and not every situation lends itself to self-synchronization. *21<sup>st</sup> century commander's intent* is suggested as an expansion on the concept of traditional commander's intent to include a transitional mechanism designed to unleash creativity and exploit opportunity *when conditions allow it*. The CINC should determine when and where these conditions exist, and be the approval authority for allowing and terminating self-synchronization activities. As such, the concept of commander's intent should be both broad and flexible. It should allow a shift in its essence from being proscriptive to being restrictive.

The major concerns with such a "laissez-faire" perspective on commander's intent involve the issues of trust, control, and accountability, which brings us full circle back to our five percent who "didn't get the word," to our very real concerns about the potentially strategic impact of tactical level mistakes, and to the "shoot-first-ask-questions-later" nightmare and its inverse, the tentative "entity" concerned about risk. It is my strong belief, however, that an amazing thing happens when commanders are truly empowered. Trust is a force multiplier. It is a force multiplier because it engenders a sense of responsibility at the

individual level that is either inhibited or absent when some higher authority holds a firm grip of control and is calling all the shots. Trust also frees subordinates to think creatively. Modern business school curricula are replete with case studies that extol the virtues of employee buy-in, individual empowerment, and organizations built on trust.

Could it be time to pursue the potential of true empowerment to the next several layers of detail in the context of future network-centric war-fighting? If so, how deep are the implications of such a pursuit? I believe that answering these questions adequately requires revolutionary thinking about everything from recruiting and training, to organizational purpose and structure, to Service culture. For example, one major cultural obstacle standing in the way of true empowerment is the problem of "zero-defect" expectations in today's military. Indeed, few are likely to act with initiative if mistakes are met with out-of-proportion punishments. A significant resource concern involves the quality, motivations, beliefs, and diversity of individual people. Top-down organizations presumably allow only the wisest and most capable to rise to the top, and it is only at the top that weighty decisions are taken. Self-synchronization demands profound performance at low levels. Where do we find tomorrow's super-warriors? How do we attract them to a military career? How do we train them? How do we retain them?

Unleashing "entities" to self-synchronize may prove to be less risky than many predict if the focus remains on *people* as the critical ingredient to future success in combat. Our technological development should focus on enabling well-trained professionals to accurately assess their surroundings in a complex, high tempo, chaotic environment. *Shared battlespace awareness* is a sensible goal in this respect. However, we should stop paying lip service to the importance of quality people to our future military, and attract, recruit, train,

and retain only the very best. We should empower these professionals to act with initiative and creativity by unleashing them via a doctrine of decentralization founded on trust and a leadership environment that allows the underwriting of mistakes. A final tool we might offer future combatants involves enhancing judgment skills with behavioral training in *Operational Risk Management (ORM)*.

### **Operational Risk Management**

“All decisions are crossroads between competing courses of action”<sup>26</sup>

Each of us makes an untold number of decisions every day. Whether we realize it or not, every decision we make involves some weighing of uncertain benefits and associated costs. Decisions in the context of violent interaction between opposing wills—combat—are no different in this respect, but are fundamentally different in another; they must consider sobering risks. Risk, by definition, is the possibility of harm or loss; it is a factor, element, or course involving uncertain danger.<sup>27</sup> In combat, risk is both weighty—lives and combat assets are at stake—and obscure, as Clausewitzian ambiguity, uncertainty, and friction conspire to persistently raise the stakes of the game. Furthermore, combat decisions at all levels require precision—they must stand up to tests of feasibility, adequacy, and acceptability.<sup>28</sup> Feasibility means a chosen option is executable, with resources available, in the face of potential heavy enemy opposition, within given boundaries. Adequacy means the option selected can achieve the military objective while complying with guidance (or boundaries) from above. Acceptability means that expected gains not only exceed, but also are worth any potential losses.<sup>29</sup> Additionally, as we’ve seen in previous discussion, the primary goal of NCW is to act with speed and initiative, to operate “inside” an opponent’s decision cycle. If we are honest in our thinking about this challenge, a picture begins to

emerge wherein our future warrior almost visibly stoops under the weight of profound responsibilities. Judgment in our future battlespace will be at a premium.

A valuable, though not necessarily new tool to help future decision-makers in this demanding setting is *Operational Risk Management*. ORM is a systematic process that helps leaders make informed decisions. Three basic rules underline the application of ORM, regardless of level and command. They are:

1. **Do not accept unnecessary risk.** We accept risk all the time without necessarily knowing it. ORM is a conceptual process that involves exposing risk, then breaking it down into component parts, managing the parts, reassembling the whole, and then accepting what is left.
2. **Make risk decisions at the proper level.** Who in the organization should accept risk? ORM seeks to assign risk accountability at the lowest, yet appropriate level.
3. **Accept risk if the benefits outweigh the costs.** Knowing the dimensions of risks we may choose to accept is critical. Risks must always be considered in relation to potential benefits. Even the highest risk endeavors, such as those seen in unfolding combat, may be undertaken when there is clear knowledge that the sum of the benefits exceeds the costs.<sup>30</sup>

Given these underlying rules, ORM is a six-step process:

1. **Identify the hazard:** hazard can be defined as any real or potential condition that can cause mission degradation, injury, illness, or death to personnel, or damage to or loss of equipment or property
2. **Assess the risk:** risk is the probability and severity of loss from exposure to the hazard. Assessment is the application of quantitative or qualitative measures to determine all the levels of risk associated with a specific hazard. The assessment step in the process defines the probability, severity, and exposure, or a mishap that could result from the hazard.
3. **Analyze risk control measures:** Investigate specific strategies and controls that reduce or eliminate risk. Effective control measures reduce one of the three components—probability, severity, or exposure—of risk.
4. **Make control decisions:** decision-makers at the appropriate level choose controls based on analysis of overall costs and benefits.
5. **Implement risk control:** Once control strategies have been analyzed, an implementation strategy needs to be developed and then applied by commanders and subordinates.
6. **Supervise and review:** ORM is a process that continues throughout the life cycle of the system, mission, or activity. Once controls are in place, the process must be scrutinized to determine its effectiveness.<sup>31</sup>

The very interesting thing about ORM that should capture the imagination of our future CINC is that unlike commander's intent that appears simple on paper but becomes monstrously difficult in practice, ORM is just the opposite. What looks detailed and cumbersome as depicted above, is in practice quite simple to perform. As such, it is a process that lends itself very well to instinctive application in fluid, high tempo decision-making. The steps can be followed in careful, methodical fashion as a CINC's planning staff might require. Or, they may be considered almost instinctively in a time critical scenario, as a fighter pilot might in deciding whether to commence an approach, or to fire a missile. This is because ORM is common sense captured on paper. It is sensible cost-benefit analysis put in simple format, with common terminology, that is rapidly achieving universal acceptance, at least in military circles. Former Army Chief of Staff Dennis Reimer described risk management as:

*not an add-on feature to the decision-making process, but rather a fully integrated element of planning and executing operations...risk management helps us preserve combat power and retain the flexibility for bold decisive action. Proper risk management is a combat multiplier that we can ill afford to squander.*<sup>32</sup>

Each of the Services has embraced ORM to varying degrees in the last few years and there is a concerted effort underway in the joint arena to incorporate risk management into joint doctrine. These are positive developments. Yet, for ORM to contribute to its full potential in our NCW future, it must become a part of each warrior's psyche. It must become embedded in our future military's culture. ORM is a made-to-order tool for the battlespace "entity" struggling with the potential impact of a self-synchronizing decision. Applying ORM to every decision, at every level, from the NCA down to self-synchronizing "entities," should come as naturally as breathing. We must seek not just to dictate policy and generate

doctrine on this subject; we must endeavor to change behavior. In this way, ORM has the potential to be a significant combat multiplier for our 2015 CINC.

### **Putting It All Together—Some Concluding Thoughts**

The information age is here. Failure to pursue the enormous potential information age technology offers future war-fighters is anathema to the “American way”, and risks our national ability to compete on the 21<sup>st</sup> century global stage. Yet, if we are not careful, the dazzling brilliance of technology will serve to blind us to the messy verities of war so eloquently offered by Clausewitz nearly two centuries ago. Technological capability alone will never translate into effective military action. On the other hand, brilliant future combat leaders could find themselves disadvantaged without dominating American technology to employ. The so-called revolution in military affairs (RMA) must include both the aggressive pursuit of technology *and* equally aggressive pursuit of sociological change within our military institutions and culture. There must be a wedding of sorts to join technological promise with human potential.

Advocates of Network Centric Warfare have offered a future concept of operations that seeks this wedding of technology and humanity. This concept of operations promises future joint force commanders “an information superiority-enabled concept of operations that generates increased combat power by networking sensors, decision-makers, and shooters to achieve shared awareness, increased speed of command, higher tempo operations, greater lethality, increased survivability, and a degree of self-synchronization.”<sup>30</sup> Self-synchronization is a new idea that offers significant promise for the future CINC. However, mastering the nexus of technology enhanced awareness and effective human decision-making presents enormous challenges associated with our human imperfections. Indeed, human

dimension challenges loom far larger than technology concerns in our efforts to someday reap the military benefits of self-synchronization. Much effort and creative thinking is needed to develop doctrinal and behavioral mechanisms to make the promise of self-synchronization a reality. This paper proposes two such mechanisms. Is the notion of self-synchronization a splendid promise? If we choose to aggressively pursue its potential with an open mind and a positive outlook, I believe it can be.



## Notes

<sup>1</sup>David S. Alpert and others, Network Centric Warfare: Developing and Leveraging Information Superiority (DoD C4ISR Cooperative research Program, Washington D.C., 1999), 2.

<sup>2</sup> Ibid.

<sup>3</sup> Vice Admiral Arthur K. Cebrowski and John J. Garstka, "Network-Centric Warfare: Its Origins and Future," US Naval Institute Proceedings, 124 No. 1, January 1998, 35.

<sup>4</sup> Lieutenant Commander Layne M. K. Araki, USN, "Self-Synchronization: What is it, how is it created, and is it needed?" (Unpublished Research paper, U.S. Naval War College, Newport, RI: 1999), 4.

<sup>5</sup> Alpert, 157-186.

<sup>6</sup> Ibid.

<sup>7</sup> Ibid.

<sup>8</sup> Araki, 4.

<sup>9</sup> Cebrowski and Garstka, 28-35.

<sup>10</sup> Lieutenant General Paul K. Van Riper, USMC (Ret.) and Lieutenant Colonel F.G. Hoffman, USMCR, "Pursuing the Real Revolution in Military Affairs: Exploiting Knowledge-Based Warfare," National Security Studies Quarterly, Summer, 1998, Vol. IV, Issue 3, 1-19.

<sup>11</sup> Ibid.

<sup>12</sup> Vice Admiral Arthur K. Cebrowski, "Network Centric Warfare: An Emerging Response to the Information Age," Presentation at the Command and Control Research Technology Symposium, Naval War college, June 29, 1999, 1-8.

<sup>13</sup> David Alpert, "The Future of command and Control with DBK," Dominant Battlespace Knowledge and Its Consequences, Institute for National Strategic Studies, October 1995, <http://www.ndu.edu/inss/books/dbk/dbkch05.html>, 15 April 2000.

<sup>14</sup> Joint Chiefs of Staff, Joint Vision 2010, (Washington D.C., 1997), 13.

<sup>15</sup> Colonel Mackubin T. Owens, "The Use and Abuse of 'Jointness'," Marine Corps Gazette, November 1997, 50-59.

<sup>16</sup> Cebrowski, 4-8.

<sup>17</sup> Ibid., 1.

<sup>18</sup> Ibid.

<sup>19</sup> Van Riper and Hoffman, 15.

<sup>20</sup> Cebrowski and Garstka, 35.

<sup>21</sup> Carl Von Clausewitz, On War, (Edited and Translated by Michael Howard and Peter Paret, Princeton University Press, Princeton, New Jersey, 1984), 119.

<sup>22</sup> Lieutenant Colonel Walter N. Anderson, USA, "Commander's Intent—Theory and Practice," Armor, Fort Knox, May/June 1998, 46-48.

<sup>23</sup> Ibid.

<sup>24</sup> Ibid.

<sup>25</sup> Van Riper and Hoffman, 11.

<sup>26</sup> Ben F. Tholkes, "Defining Risk," The Camping Magazine, Martinsville, Sep/Oct 1998, 24-26.

<sup>27</sup> Lieutenant Commander Frederick Latrash, USN, "Risk Management: An Integral Part of Operational Planning," (Unpublished Research Paper U.S. Naval War College, Newport RI: 1999), 1.

<sup>28</sup> Ibid., 2.

<sup>29</sup> Ibid.

<sup>30</sup> Seventh Air Force, "Seventh Air Force Operational Risk Management Guide," Osan Air Base, Republic of Korea, 1998.

<sup>31</sup> Ibid.

<sup>32</sup> Latrash, 4.

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